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DLA PREPROVISIONING PROTOTYPE: A SUCCESSFUL CALS DEMONSTRATION PROJECT

Report DL704R1

December 1988

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Prepared pursuant to Department of Defense Contract MDA903-85-C-0139.

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UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION Unclassified	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION / AVAILABILITY OF REPORT "A" Approved for public release; distribution unlimited.
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) LMI-DL704R1	5. MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION Logistics Management Institute 6b. OFFICE SYMBOL *(If applicable)*	7a. NAME OF MONITORING ORGANIZATION
6c. ADDRESS *(City, State, and ZIP Code)* 6400 Goldsboro Road Bethesda, Maryland 20817-5886	7b. ADDRESS *(City, State, and ZIP Code)*
8a. NAME OF FUNDING / SPONSORING ORGANIZATION DLA, Supply Management Division 8b. OFFICE SYMBOL *(if applicable)* DLA-OS	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER MDA903-85-C-0139
8c. ADDRESS *(City, State, and ZIP Code)* Room 4C261 Cameron Station Alexandria, VA 22314	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. / PROJECT NO. / TASK NO. / WORK UNIT ACCESSION NO.
11. TITLE *(Include Security Classification)* DLA Preprovisioning Prototype: A Successful CALS Demonstration Project	
12. PERSONAL AUTHOR(S) Bruce A. Pincus	
13a. TYPE OF REPORT Final 13b. TIME COVERED FROM _____ TO _____	14. DATE OF REPORT *(Year, Month, Day)* December 1988 15. PAGE COUNT 60
16. SUPPLEMENTARY NOTATION	
17. COSATI CODES FIELD / GROUP / SUB-GROUP	18. SUBJECT TERMS *(Continue on reverse if necessary and identify by block number)* DLA, preprovisioning, prototype, Computer-aided Acquisition and Logistic Support (CALS), cataloging, provisioning

19. ABSTRACT *(Continue on reverse if necessary and identify by block number)*

The most significant problem in the provisioning process is missing or inadequate technical data – the early use of the Preprovisioning Prototype (PPP) helps solve the problem. The PPP also improves Defense Logistics Agency (DLA) review of provisioning data received from the Military Services and their contractors, shortens the data review cycle, improves tracking of work assignments as well as technical and provisioning data, increases data integrity, and increases information accessibility.

The PPP project demonstrated that significant opportunities exist within Computer-aided Acquisition and Logistic Support (CALS) to streamline provisioning and cataloging processes. Because of the benefits derived from the PPP, we recommend that DLA immediately expand the demonstration project to provide a full production capability. We also recommend a comprehensive modernization of the provisioning process – consistent with the CALS environment. Such modernization would: reduce DLA procurement administrative leadtime support to the Services, shorten the provisioning research process, assist in and simplify the provisioning decision-making process, decrease the amount of time and effort for provisioning source coding conferences, and facilitate electronic processing of Service supply support requests.

DLA should establish a Provisioning Integration Center as the focal point to modernize the provisioning process. DoD could use the Center as part of the CALS Testbed Network and to develop and validate proposed provisioning enhancements of CALS and other logistics modernization efforts.

20. DISTRIBUTION / AVAILABILITY OF ABSTRACT ☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS	21. ABSTRACT SECURITY CLASSIFICATION
22a. NAME OF RESPONSIBLE INDIVIDUAL	22b. TELEPHONE *(Include Area Code)* / 22c. OFFICE SYMBOL

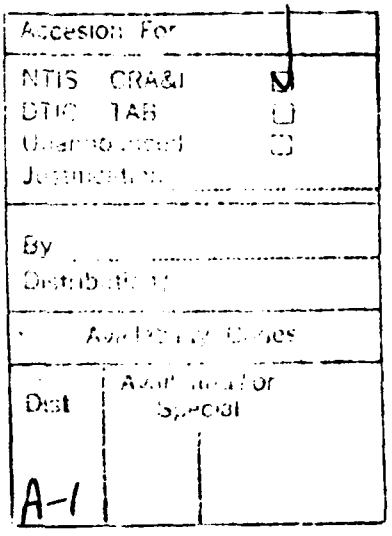
DD FORM 1473, 84 MAR 83 APR edition may be used until exhausted. All other editions are obsolete.

SECURITY CLASSIFICATION OF THIS PAGE

UNCLASSIFIED

ACKNOWLEDGMENTS

The project team is grateful to the Service and agency representatives who cooperated willingly, sharing freely their time and ideas concerning the Defense Logistics Agency Preprovisioning Prototype demonstration. The team also appreciates the technical advice and written inputs provided by Integrated Microcomputer Systems (IMS) staff members A. J. Kalimanos and Larry Rutledge.



Executive Summary

DLA PREPROVISIONING PROTOTYPE: A SUCCESSFUL CALS DEMONSTRATION PROJECT

The most significant problem in the provisioning process is missing or inadequate technical data – the early use of the Preprovisioning Prototype (PPP) helps solve the problem. It does this by identifying technical data deficiencies early enough in the process so that the contractor can correct them before provisioning team members review item information with the item manager and the manufacturer. The PPP also improves Defense Logistics Agency (DLA) review of provisioning data received from the Military Services and their contractors, shortens the data review cycle, improves tracking of work assignments as well as technical and provisioning data, increases data integrity, and increases information accessibility.

The PPP project demonstrated that significant opportunities exist within Computer-aided Acquisition and Logistic Support (CALS) to streamline provisioning and cataloging processes. Because of the benefits derived from the PPP, we recommend that DLA immediately expand the demonstration project to provide a full production capability. We also recommend a comprehensive modernization of the provisioning process – consistent with the CALS environment. Such modernization would:

- Reduce DLA procurement administrative leadtime support to the Services.
- Shorten the provisioning research process.
- Assist in and simplify the provisioning decision-making process.
- Decrease the amount of time and effort for provisioning source coding conferences.
- Facilitate electronic processing of Service supply support requests.

DLA should establish a Provisioning Integration Center as the focal point to modernize the provisioning process. DoD could use the Center as part of the CALS Testbed Network and to develop and validate proposed provisioning enhancements of CALS and other logistics modernization efforts.

CONTENTS

CONTENTS (Continued)

TABLES

FIGURES

CHAPTER 1

INTRODUCTION

BACKGROUND

The DoD Computer-aided Acquisition and Logistic Support (CALS) initiative is directed toward improving the design, development, and support of weapon systems through the use of current and emerging computer technology. CALS emphasizes greater utilization of information contained in DoD and contractor databases to provide optimal, economic weapon system support. The Defense Logistics Agency (DLA) believes that provisioning for new weapon systems could benefit substantially from greater application of CALS technology.

Provisioning is a logistics management process for determining and acquiring the range and quantity of support items (i.e., spares and repair parts, special tools, test equipment, and support equipment) necessary to operate and maintain an end item of material for an initial period of service. The provisioning goal is to ensure timely, adequate, and economical support of systems and equipment entering Service inventories.

More complete access to the Military Services' databases prior to conferences on provisioning source coding could improve the timeliness and accuracy of weapon system support during initial fielding and provide DLA early visibility of the complete range of data elements needed to better manage spare parts. (At provisioning source coding conferences, provisioning team members review item information with the item manager and the manufacturer.) With access to those databases, DLA and the Services can avoid unproductive delays by making as many correct decisions regarding these items as early in the provisioning process as possible. An automated preprovisioning process will also allow DLA and the Services to transmit data to contractors for review of changes before the conference so that, at the conference, discussion can be limited to those items for which discrepancies exist or additional information is needed.

PREPROVISIONING PROTOTYPE DEMONSTRATION PROJECT

The DLA Preprovisioning Prototype (PPP) is a CALS project to demonstrate the capabilities and benefits available from on-line access to automated provisioning source coding data in the Services' logistics databases.

The demonstration project was established to verify the ability of the PPP to

- Facilitate DLA inventory control point (ICP) review of provisioning data received from the Services and contractors in preparation for provisioning source coding conferences
- Eliminate data duplication and identify opportunities for use of common hardware and software components
- Accommodate functional integration and data sharing with industry and the Services.

The PPP was selected as a CALS demonstration project to determine the ways in which automation could facilitate DLA ICP entry of provisioning data received from the Air Force and their designated contractor in preparation for provisioning source coding conferences.

For the PPP demonstration project, DLA and the Air Force agreed to use an ongoing procurement to obtain applicable provisioning and technical data. In DLA, the Defense Applied Information Technology Center (DAITC) provided computer and telecommunications support, with the computer housed at Pleasanton, Calif., and access to it available through standard DLA Z-248 microcomputers running a personal computer (PC) communications software package and a 1200-baud modem. The Defense Construction Supply Center (DCSC) and the Defense Industrial Supply Center (DISC) provided operational support in processing the applicable provisioning and technical data.

CONCLUSIONS AND RECOMMENDATIONS

Using the PPP automated system early in the provisioning process is a significant step toward resolving the most serious problem in the process – missing or inadequate technical data. In the demonstration, the PPP solved that problem by allowing DLA to identify technical data deficiencies early enough for the contractor to correct them before the provisioning source coding conference.

The demonstration project also verified the following additional near-term benefits associated with the PPP:

- *Shortened Review Cycle.* The PPP shortens the time required to review provisioning data submitted to DLA from the Air Force Air Logistics Centers (ALCs) by eliminating the preparation and shipment of manual forms. The DLA ICPs receive data in electronic form from the ALCs for review prior to the source coding conference. In addition, DLA technicians are able to access, view, scroll, and update provisioning data on a terminal screen located at their workstations.

- *Improved Tracking and Updating.* The PPP improves the process of tracking the flow of technical data and work assignments and the progress of tracking provisioning data. It maintains an electronic audit trail for each transaction.

- *Increased Data Integrity.* The use of common data definitions and data formats facilitates data exchange between DLA ICPs and the Air Force. It also contributes to streamlined updating procedures.

- *Increased Information Accessibility.* Managers and technicians working in the provisioning area find both the technical and statistical data more accessible and accurate. The electronic display of management and statistical data is tailored to the DLA ICPs' needs.

In the near-term, we recommend the PPP system be expanded and placed in full production.

In the mid- and long-term, we recommend the evolving CALS environment establish a framework for comprehensive modernization of the provisioning process to provide the following benefits:

- It will reduce procurement administrative leadtime (PALT) support to the Services.

- It will shorten the provisioning research process.

- It will assist and simplify the provisioning decision-making process.

- It will decrease the amount of time and effort for provisioning source coding conferences

- It will facilitate processing Service supply support requests electronically.

Overall, the PPP demonstration project showed that the use of computer technology within the provisioning process affords a significant opportunity to

- Improve productivity and increase the effectiveness of DLA operations to support the Services and other Defense agencies
- Capitalize on emerging CALS data exchange standards and other ongoing CALS initiatives to streamline the provisioning and cataloging process.

We recommend a Provisioning Integration Center (PIC) be established as the focal point to streamline and integrate the provisioning process. The PIC will serve as part of the CALS Testbed Network and will develop and validate proposed provisioning enhancements of CALS and other logistics modernization efforts.

CHAPTER 2

THE CURRENT PROVISIONING ENVIRONMENT

Provisioning is a management process through which the Services determine and acquire the range and quantity of support items (i.e., spares and repair parts, special tools, test equipment, and support equipment) necessary to operate and maintain a weapon system or end item for an initial period of service. The provisioning goal is to ensure timely, adequate, and economical support of systems and equipment entering Service inventories. DLA involvement in provisioning includes two major functions: technical management, i.e., item identification and item entry control; and item management, i.e., inventory control and requirements forecasting.

Increasingly long leadtimes, diminished sources of supply, a need for parts not now in production, and the uncertainty in requirements are factors that complicate DLA provisioning support. However, missing or inadequate technical data on support items is considered to be the single largest problem in the provisioning process. Timely availability of accurate technical data (engineering drawings, manufacturer's drawings parts lists, specifications, etc.) is a key ingredient for greatly compressing both administrative and manufacturing leadtimes. The PPP is targeted at shortening the technical data evaluation process, which includes identifying missing or inadequate data, obtaining those data, and validating the data to facilitate technical decision making.

The current provisioning process is illustrated in Table 2-1. (The column headings show the number of months allocated to complete all actions in a column. The numbers in parentheses indicate the sequence in which the actions occur.) The Service receives provisioning technical documentation (PTD) from the contractor. It includes the Provisioning Parts List (PPL), provisioning screening results (PSR), and supplementary provisioning technical documentation (SPTD). The PPL contains all items making up a weapon system or end item. It can be structured at the end item, component, or assembly level as specified by the provisioning activity.

TABLE 2-1

CURRENT PROVISIONING PROCESS

(Part number supply support request)

Organization	Time allocated for all actions in column			
	6 – 8 Months →	6 Months →	6 Months →	2 Months →
Military Service	(1) Issue data call (2) Develop contract requirements (3) Issue provisioning contract requirements to contractor (4) Hold provisioning guidance conference (5) Hold long-leadtime conference (9) Submit PTD, SPTD, and PSR to DLA	(10) Hold provisioning conference for technical and management coding (11) Make material selections	(12) Calculate requirements (13) Submit supply support request to DLA (as required)	
Contractor	(6) Submit provisioning screening data to DLA (DLSC) (8) Submit PTD to Service			
DLA	(7) DLSC conduct first-item screening			(14) DSCs perform item entry control (15) DSCs perform item identification and cataloging (16) Review and adjust requirements forecasts (17) Notify Service of intent to support item

Note: DLSC = Defense Logistics Services Center; DSC = Defense Supply Center.

The PPL format and documentation requirements are defined in Military Standard (MIL-STD)-1388-2A [Logistic Support Analysis (LSA)-036, *Provisioning Requirements*] or MIL-STD-1552A (*Military Standard Provisioning Technical Documentation*) for existing (pre-MIL-STD-1388-2A) contracts. Data requirements are tailored for each contract. The data elements required are specified by the requiring activity on DD Form 1949-1, *PTD Data Selection Sheet*, and represent a subset of 1388-H and H1 records. SPTD provides the technical data used to describe an item; it includes specifications, standards, drawings, photographs, sketches, and descriptions. MIL-STD-1561B (*Military Standard Provisioning Procedures, Uniform, Department of Defense*) identifies SPTD requirements. SPTD is required for each first-appearance item on the PPL except for

- Items identified by a Government specification or standard that completely describes the items
- Items recorded in the Defense Logistics Services Center (DLSC) Defense Integrated Data System (DIDS) (stocklisted items) with a full description.

PPL and PSR data are loaded into a database for validation through Service provisioning systems. If any items require correction, the PPL tape is sent back to the contractor. After the tape is corrected, the process continues; it includes screening items with no National Stock Numbers (NSNs) through the DIDS.

The data obtained from reference number interrogations of DIDS are the PSR. The provisioning screening request is submitted to DLSC by the contractor (the contractor is encouraged to perform DIDS screening) in accordance with DoD Manuals 4100.38-M (*Department of Defense Provisioning and Other Preprocurement Screening Manual*) and DI-V-7016 (*Provisioning and Other Preprocurement Screening Data*). The Services then establish a provisioning database and generate technical review documents (PPL reports) for use at source coding conferences. The average conference lasts approximately a week and reviews about 10,000 line items; however, in some cases, it may take 3 weeks or longer. DLA may attend the provisioning conference to ensure adequacy of the SPTD for items assigned to DLA for item management and assist in the selection and computation of the range and quantity of support items. DLA, however, is more likely to attend when large numbers of DLA-managed Federal Supply Class (FSC) items are involved. For the most part, DLA is not involved in any provisioning source coding activities prior to the source coding conference.

The purpose of the source coding conference is to give provisioning team members the opportunity to review recommended item information with the contractor. At the conference, the Government selects support items and assigns technical and management codes to them. All steps up to this point are referred to as the technical management review stage.

After the conference, the Service supply/provisioning database is updated and a supply support request (SSR) list is generated and sent with supporting technical data to DLA for review. The SSR includes all known manufacturers' part numbers (P/Ns), contractor commercial and Government entity (CAGE) codes, and user requirements. DLA advises the Service of deficiencies in the receipt of technical data and determines the quantity of the item to be stocked. (Technical data may not be provided for a number of valid reasons.) DLA reviews items for potential interchangeability and substitutability (I&S) with currently managed items and makes recommendations for approval or disapproval of items by the Service. Recommendations for substitutes are forwarded to the Service. The functions performed after the conference are referred to as item management review. Approximately 58 percent of the active items (common piece parts) used by the Services are cataloged and managed by DLA today. Figure 2-1 displays the current DLA SSR processing environment.

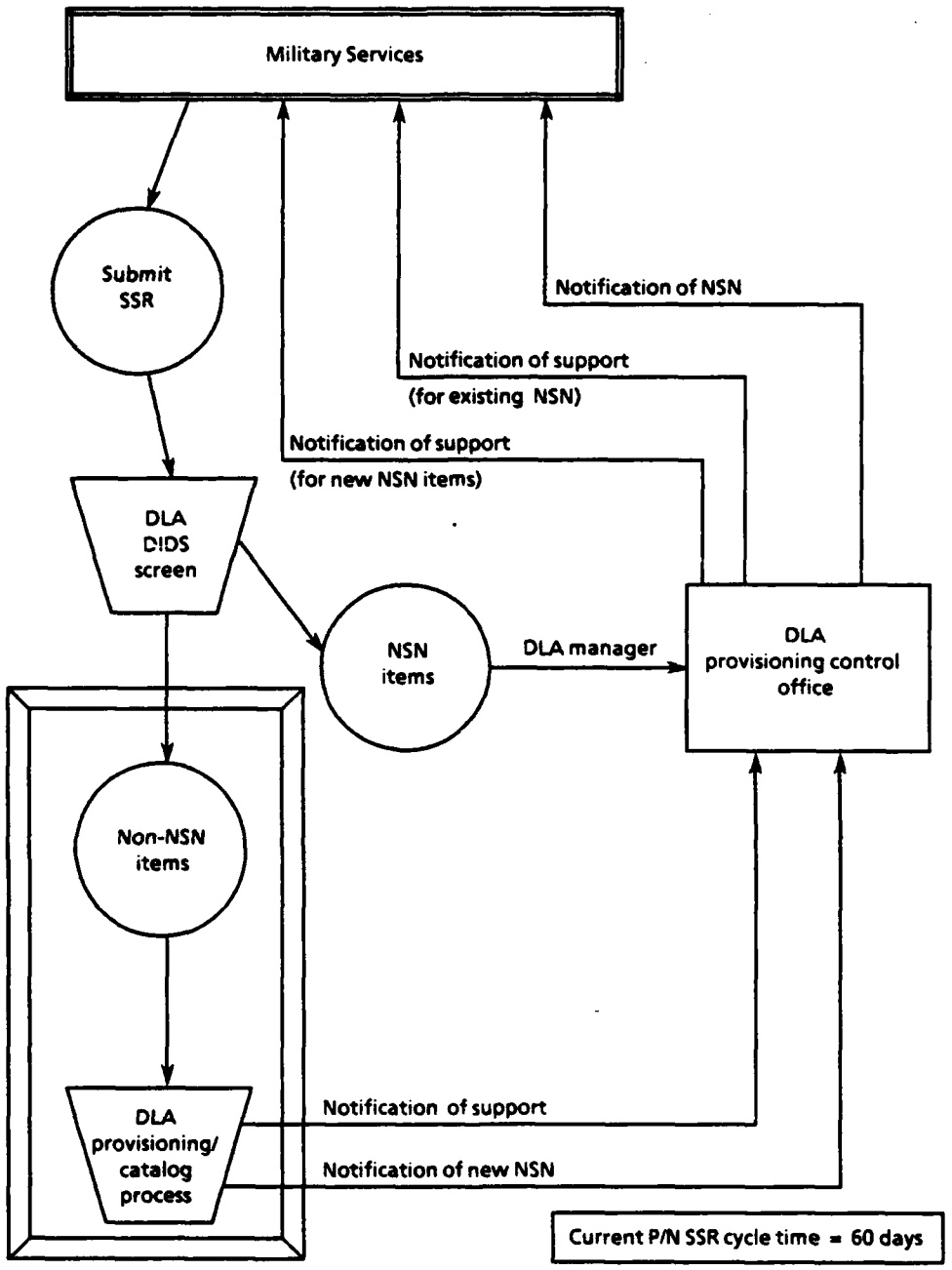


FIG. 2-1. DLA SSR PROCESSING ENVIRONMENT – CURRENT

CHAPTER 3

DLA PREPROVISIONING PROTOTYPE DEMONSTRATION

INTRODUCTION

The PPP was selected as a CALS demonstration project to determine ways in which automation could facilitate DLA ICP item entry control of provisioning data received from the Air Force and their designated contractor in preparation for provisioning source coding conferences.

For the PPP demonstration, DLA and the Air Force agreed to use an ongoing procurement to obtain applicable provisioning and technical data. In DLA, DAITC provided computer and telecommunications support and DCSC and DISC provided operational support in processing the applicable provisioning and technical data.

DEMONSTRATION COMPUTER SYSTEM

The DLA PPP demonstration database and system software were housed on a DLA DAITC computer in Pleasanton, Calif. Access to that computer was available through standard DLA Z-248 microcomputers running a PC communications software package and a 1200-baud modem.

The specific machine upon which PPP ran was an ELXSI superminicomputer running the UNIX operating system. The system used the UNIFY Database Management System and its associated program ACCELL™ as the major user interface.

DEMONSTRATION SYSTEM DATA

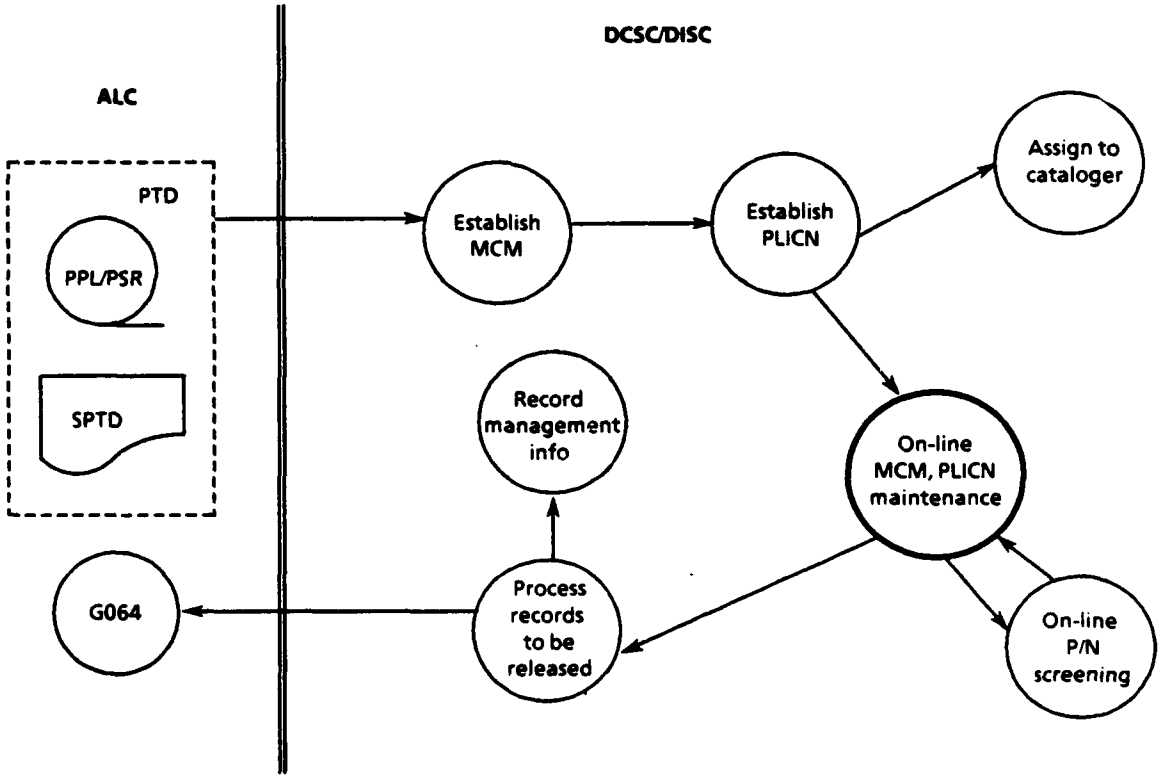
The specific database residing in PPP files was provided by the Air Force's D220 system for a specific system provisioning project. The project, a utility truck from Oshkosh Manufacturing Co., resulted in a demonstration database of more than 4,200 different parts or Provisioning List Item Sequence Numbers (PLISNs). Using the PPP, DLA catalogers actually processed these PLISN records to get ready for the scheduled provisioning source coding conference. Cataloger progress in

working the PLISNs was tracked through the Master Contract Matrix (MCM) file and the accompanying reporting capability.

DEMONSTRATION PREPROVISIONING PROCESS

The PPP demonstration automated most of the manual methods and procedures. The PPP demonstration was tested initially at DCSC and DISC, and key DLA ICP personnel were trained to use the system at DCSC.

The major processes performed by the demonstration and the relationship between the Air Force ALC, Robins Air Force Base, Ga., and DCSC/DISC are depicted in Figure 3-1.



Note: PLICN = PLISN/PCCN/SCC (Provisioning List Item Sequence Number/Provisioning Contract Control Number/Submission Control Code).

FIG. 3-1. DEMONSTRATION PREPROVISIONING PROCESSES

Upon receipt of PPL and PSR data on the magnetic tape from the ALC, the PPP created a record of the contract-identifying information in an MCM file and a record for each line item in the PLICN [PLISN/Provisioning Contract Control Number (PCCN)/Submission Control Code (SCC)] file. Records were assigned to a cataloger who evaluated the quality of the PTD and determined whether he/she could adequately review it in the allotted time. The size of the file (number of items with no NSN), validity of P/Ns, and availability of properly sequenced screening results all helped determine the need for assigning additional personnel and obtaining DIDS Total Item Record (TIR) screening.

With the demonstration system, DCSC and DISC catalogers could review and update file data, and generate management statistical reports through an on-line, menu-driven system. All data were edited when entered, and cross edits were performed to ensure accuracy and quality assurance before the data were released to the ALC.

Once the PLICN records were updated on-line by the cataloger, the PLICN data file was released to the originating ALC. The PPP also recorded management information and transferred released records and selective data to the appropriate history files.

FUNCTIONS PERFORMED BY PREPROVISIONING PROTOTYPE

The PPP performs the following specific functions:

- *Establishing/maintaining MCM.* This function establishes the submission identification data file. Each record in the MCM is established by either the cataloger or the PPP during the validation step of the data submitted to DCSC. The cataloger can establish this record. The system either completes the record established by the cataloger or builds the entire data record from information recorded in the header information of the ALC-submitted data. The cataloger can view, query, and update this file through an on-line, menu-driven capability. Interactive and off-line updates are also made to this file as a result of interactive and off-line processing of the PLICN file. The appendix contains a more detailed discussion of establishing the MCM.

- *Establishing/maintaining PLICN record data file.* This function establishes records in the PLICN data file from information in the ALC-submitted PPR file (see Figure 3-2).

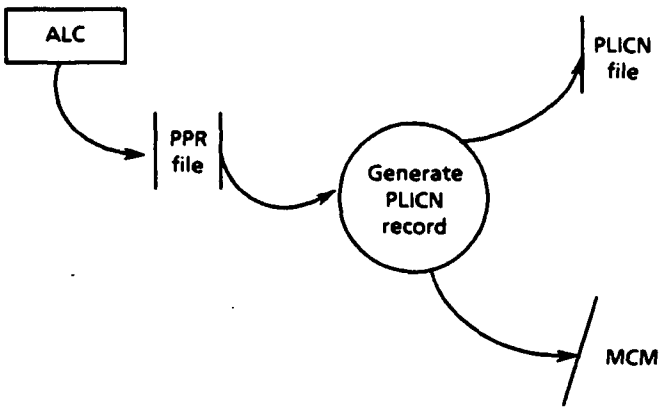


FIG. 3-2. ESTABLISH PLICN FILE

Following establishment of the MCM file (assuming the file is not a duplicate submission), the PPP establishes a separate PLICN record for each PLISN received and adds one to TOTAL PLISNs in the MCM file.

Each PLICN is worked by a cataloging technician. This consists of reviewing and annotating or correcting, as necessary, each PLICN. The PLICN assignment can be made directly by the supervisor, or the cataloger can request a work assignment directly from the PPP. In the latter case, the next unassigned PLICN is selected.

The cataloger has an on-line capability to annotate or correct as necessary the following data elements:

- FSC
- CAGE
- P/N
- Reference number category code (RNCC)
- Item name
- Quantity unit pack (QUP)
- Unit of issue (U/I)
- Price
- National Item Identification Number (NIIN)
- Document availability code (DAC).

- *Suspense and tracking.* The PPP tracks both the overall file and all its records. It notifies the cataloger when the responsible cataloger for a PPL is recorded and when the PPL due date is breached.

- *Accounting.* The accounting function continuously updates backlog and production statistics for display. The function tracks statistics for both the overall PLICN record and individual PLICN data elements.

CATALOGER WORKLOAD MENU

The cataloger workload menu displays the eight processing options (routines) described in the following sections:

- *Option 1 (Records Awaiting Remote Screening/Research).* Option 1 of the workload menu displays key information from the MCM for PLICN records requiring technician review.

  The cataloger is prompted for the contract number identification code (CNID) or, if the cataloger does not know it, for the Procurement Instrument Identification Number (PIIN)/PCCN/SCC. Failure to answer these questions forces the PPP to route the user to the MCM file and display all contracts in due-date order on an MCM screen.

  When a specific contract is identified, the system requests the specific PLICN for initial display. If that request is unanswered, the PLICNs are presented sequentially in PLICN-sort order, using a PLICN screen.

  To minimize screen updates, these system prompts and responses are handled within the Commands, Messages, and Help area.

  Once the detailed PLICN screen is presented, the cataloger can add or update information for any field, move to other PLICN records, switch to the MCM screen, or return to the initial menu. This dialog is either command- or function-key-driven using the provided Commands, Messages, and Help area.

  The data entered by the cataloger is edited. When the cataloger completes PLICN review/processing, the PPP verifies the data and automatically performs the following actions:

  - Moves the FSC originally recorded to the Contractor Original PPL FSC field and inserts the new (corrected) FSC in the FSC field.

  - Displays the next record in suspense if the CAGE and reference numbers are identical.

  - Displays the MCM maintenance screen to record MCM statistics if the CAGE and reference numbers differ.

- *Option 2 (FSC Assignment/Resolution).* Option 2 of the workload menu allows the cataloger to enter the FSC on nonstocklisted items that are not assigned an FSC code by the contractor in the preparation of the PPL.

- *Option 3 (Drawing Adequacy Review).* Option 3 of the workload menu allows the cataloger to input drawing information.

- *Option 4 (Final Review).* Option 4 of the workload menu allows the technician to perform a final review of records. This situation occurs when a cataloger technician code (CTC) is recorded on a PLICN record and the corresponding cataloging technician makes a change in the recorded NSN and/or reference number.

- *Option 5 (Delinquent Items).* Option 5 of the workload menu displays the backlog of delinquent items for a particular FSC. All items overdue per PLICN record due date (from MCM) are displayed. Catalogers can only display overdues applicable to their cognizant work assignments, while the supervisor can review overdues for the department or individual catalogers.

- *Option 6 (Files Interrogation).* Option 6 of the workload menu allows the cataloger technician to interrogate system files by P/N, CAGE/P/N, PLICN, or NIIN.

- *Option 7 (Part Number Screening).* For purposes of the demonstration, we assume that the ALC completed DIDS P/N screening prior to submitting the data to DCSC. However, the cataloger has the capability to simulate screening of selected records.

- *Option 8 (Exit Program).* Option 8 allows the technician to discontinue all processing and sign off the PPP.

PREPROVISIONING DEMONSTRATION EVALUATION

The single most important conclusion reached in demonstrating the PPP was that preprovisioning data can be processed in advance of source coding conferences and well in advance of receiving an SSR from the Air Force. Advanced processing of the technical data used for provisioning permits determination of its adequacy for developing complete item identification. Moreover, when technical data are missing or inadequate, there is still sufficient time to notify and obtain those data from the contractor.

The PPP demonstration served two other key purposes: first, it was a focal point for refining and defining user requirements and second, it substantiated the

premise that increases in productivity can be realized through smart application of computer technology.

Users' Requirements

The PPP demonstration satisfied the functional requirements identified during development and implementation. During DCSC and DISC processing of the PLICNs in the demonstration database, users suggested the following PPP enhancements and extensions:

- *Quick look-up capability.* A quick look-up capability should be provided to allow the catalogers to reference another PLICN during processing of their selected PLICN. Windowing techniques could be used to accommodate this quick look-up search-and-return requirements.
- *PLICN assignment and access.* PLICN assignment and access should be modified such that:
  - PLICNs are assigned automatically to cognizant Defense Supply Centers (DSCs) using designated FSCs.
  - Catalogers are allowed access to PLICNs assigned to other catalogers.
  - Catalogers are allowed to add new PLICNs as required.
- *Redefined manager functions.* Manager functions should be made consistent with DSC operating procedures. In the demonstration environment, the PPP provided greater management control of PLICN assignment and review than is necessary in a production environment.
- *Redundant data storage elimination.* The database design should be modified to ensure that the data are stored only once, but can be displayed where and when required. The following two examples of this condition were noted during the demonstration:
  - Both the MCM and PLICN contain the CNID, PIIN, PCCN, and SCC. Since the CNID is a unique identifier for the PIIN, PCCN, and SCC, it is the only field that needs to be stored as part of the PLICN. All fields could, however, be displayed on the PLICN screen.
  - The ALC field is represented by the first character of the PCCN field. Here, also, the principal of single storage and multiple display applies.
- *DLSC DIDS interface implementation.* An interface should be established directly with the DLSC DIDS database to provide users with access to P/N data on remote computers in order to compare preprovisioning data with

those data in the DIDS database. The demonstration only simulated access to DIDS.

- *Z-STEM communications software use.* Z-STEM communications software is an appropriate package for the PPP and should be used. It is standard, inexpensive, widely used, and supports downloading from a remote central processing unit for local printing. Z-STEM was successfully tested during the demonstration; however, it was not incorporated at the time of implementation.

- *Hardware configuration source selection.* The DAITC-provided ELXSI 6400 host computer was available for use solely during the development, testing, and implementation of the PPP demonstration system. Implementation of a full production capability requires an alternative host computer.

- *Simultaneous processing of multiple contracts.* Procedures need to be implemented to allow multiple provisioning weapon system contracts to be processed simultaneously. For the demonstration, only a single provisioning contract was processed.

- *Screen layout modification.* Screen layouts should be reviewed to ensure they accommodate ready access to the most worked data fields.

- *Data transmission speed improvement.* High-speed access [9600 bits per second (bps) or above] should be utilized in a production environment to preclude delays in screen painting and cataloger operations.

- *Tape Loading Procedure Expansion.* Procedures implemented during the demonstration accommodate only one tape per contract. Procedures must be expanded to

  - Allow additional tapes for existing contracts

  - Prevent reloading of the same tape.

- *Database security enhancement.* A complete log-in and password security system should be utilized. For the demonstration, the CTC entered was accepted without elaborate checks.

- *Reports and management information expansion.* Reports and management information should be provided to better track the status of PPP files and evaluate contractor provisioning performance.

Productivity Enhancements

Provisioning Technical Management

PPP is a focused effort targeted at item entry control functions; it is part of the technical management review process preparatory to provisioning source coding conferences and generation of SSRs. Proactive[1] technical review in the early phases of the provisioning process provides the opportunity for DLA ICP catalogers to take the following actions:

- Screen out duplicate items by thoroughly comparing the submitted items with known (NSN-assigned) items
- Identify opportunities for item I&S with currently managed items before receiving an SSR
- Develop full descriptive item identification for more items after SSR receipt by acquiring more-accurate technical data prior to the SSR 60-day processing time.

Initiating the technical management process early in the provisioning cycle offers the following near-term advantages:

- It provides the Services with more-accurate data with which to determine provisioning requirements.
- It provides the opportunity to obtain missing drawings and/or adequate technical data from contractors.
- It accelerates source coding at provisioning conferences.
- It leverages I&S opportunities.

Provisioning Item Management

PPP prototyping and evaluation highlighted that missing and inadequate technical data (PTD and SPTD) are the biggest impediments to the provisioning process. Accurate, comprehensive preprovisioning starting well before the provisioning conference, provides an opportunity to reduce PALT by identifying and correcting technical data deficiencies early. Moreover, an early DLA role in the provisioning process also serves a precataloging function. Item entry control

[1] *Proactive* is a coined word used analogously to reactive (responsive to a stimulus); *proactive* means responsive in advance of any stimulus.

provides a foundation for accurate requirements forecasting and submission of requirements to DLA by the Services.

Other Provisioning Issues

Discussions with DLA, the Services, and industry revealed a range of diverse issues regarding provisioning data availability and data management. In general, those issues centered on the gaps in both process and time that are associated with sequential processes currently employed. Those gaps, primary targets of the DoD CALS initiative, are portrayed in Figure 3-3 as they apply to the provisioning process.

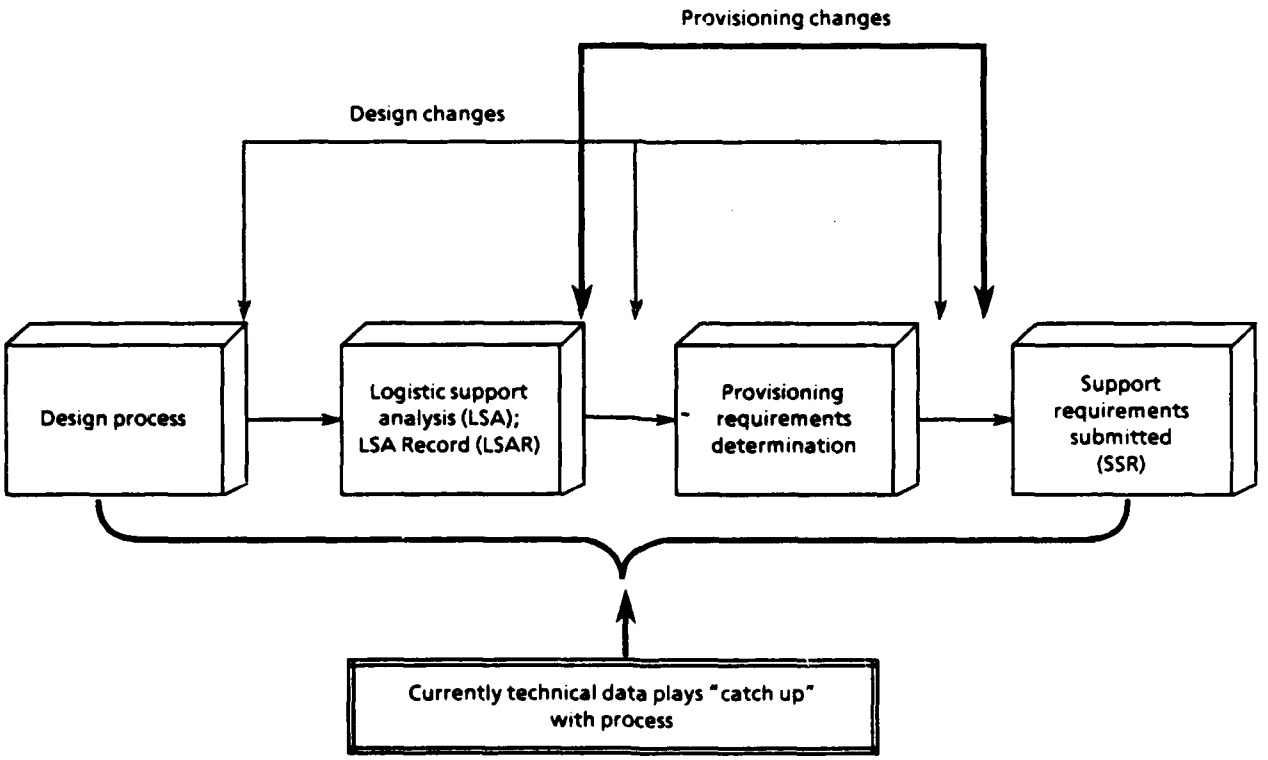


FIG. 3-3. TECHNICAL DATA GAPS IN PROVISIONING

The discussions identified two issues that represent in aggregate the provisioning issues raised during preliminary provisioning assessment: the DLA inventory growth and the item relationship to weapon system.

DLA Inventory Growth

The DLA inventory continues to grow as a result of SSRs from the Services despite many attempts to reduce it. The growth rate has averaged 5 percent a year over the past 5 years. The growth problem is particularly evident with first-appearance items. An estimated 30 percent of the new items carried in inventory in response to SSRs received from the Services have no demand after 4 – 5 years.

For some selected new items the opposite is true. Inaccurate projections of true needs create a substantial volume of back orders that clog the system with multiple inquiry and tracking actions.

Item management and inventory control processes are based upon Service requirement estimates. The Services use the following general criteria for requirements determination:

- *Stability of requirement.* The minimum need is expected to remain unchanged or vary only slightly during the planned contract period.
- *Stability of funding.* The program is reasonably expected to be funded at the required level throughout the contract period.
- *Stable configuration.* The item is technically mature; has completed research, development, test, and evaluation (RDT&E); relatively few changes in design are anticipated; and underlying technology is stable.
- *Cost confidence.* Contract cost estimates appear to be realistic.

In reality these criteria are not routinely met and the Services, working with the best information available, generate estimates that can quickly cause inventory to build up. This problem is particularly troublesome in initial sparing. Initial spares-demand-factors are based on engineering reliability estimates of failure rates (derived from comparability analysis) and sparing-to-availability models.

Early in the development cycle, large uncertainties exist in the predicted failure rates and the design stability. If full spares are provided at that time, the probability is high that a large number will ultimately be unusable and contribute to unneeded inventory.

The uncertainties extant during the time in which actual usage data is acquired – the demand development cycle – cause untimely SSRs, which

frequently result in the inability to meet initial fielding schedules without compensatory accelerating actions.

The essence of this problem is that DLA currently has extremely limited visibility into the entire body of engineering, management, budgetary, and policy implications of the weapon system acquisition process that precede receipt of a Service SSR. Exploiting the PPP in this role could provide DLA with an opportunity to gain such visibility. Near-term opportunities available to do this were identified during the PPP demonstration. Data contained in the Air Force D220 Mechanized Provisioning System was examined to determine their usefulness to DLA catalogers and provisioners. These candidate data items are shown in Table 3-1.

Item Relationship to Weapon System

Item relationship to a weapon system is perhaps the fundamental data issue in provisioning. Currently, establishing the basic relationship between an item and its associated weapon system or equipment depends on the Services' submitting necessary data (weapon system designator and essentiality codes) in the SSRs. However, the information in the SSR is submitted only when establishing an initial need for an item. As events generally experienced in the life cycle of a weapon system occur, such as greater than anticipated weapon system density, no corresponding increase in parts stockage level occurs because the weapon system density information is not required to be provided to DLA. Additionally, because a time lag occurs between a design change and the resulting SSR (see Figure 3-3), it is not sufficient to only provide DLA with visibility to design changes by submittal of an SSR.

Item relationship to weapon system concerns start even earlier than discussed above; it first appears in the Logistic Support Analysis Record (LSAR). Existing software for automated LSAR limits P/N appearances in Support Item Identification Records (H and H1 Data Records). Limiting P/N appearances reduces data redundancy but makes the LSAR H and H1 records incompatible with current computer-aided design (CAD) and configuration status accounting techniques. In these and many other engineering functions there is a strong move to record and maintain hierarchical relationships for entire platforms and systems. Such Top Down Breakdown (TDBD) approaches are now used by weapon system manufacturers in provisioning.

TABLE 3-1

CANDIDATE DATA ELEMENTS TO SUPPORT EARLY DLA ITEM MANAGEMENT

(Extracted from Air Force D220 Mechanized Provisioning System)

Data item	Short name
Total recommended quantity	TOT-RECOMD-QTY
Initial spare support list candidate	ISSL-PRNT
Special material content code	TYPE-OF-ITEM 1
Provisioning list category code	PLCC
Special maintenance category code	TYPE-OF-ITEM 2
Production leadtime	PROD-LEAD-TIME
Maximum allowable operating time	MAX-ALL-OPER
Maintenance action code	MAINT-AC-CD
Special handling code	SPEC-HDLG-CD
Weapon system code	WPN-SYST-CD
Programming checklist date	PCL-DATE
End item delivery code	EI-DEL-CD
Percent end items east	EI-PCT-EAST
Peak month program	PK-MTH-PRG
Type of program code	TYPE-PROG-CD
Average month program	AV-MNTH-PRG
Number of bases	NR-BASES
Operational need date	OPER-NEED-DT

CAD and TDBD provide new capabilities in identifying mirror image (aircraft left versus right wing for example) requirements mismatches and aggregating individual piece part requirements for an entire platform. These areas require more analysis and are discussed further in Chapter 5.

CHAPTER 4

NEAR-TERM PROVISIONING IMPROVEMENTS

GENERAL

Initial use of the PPP demonstration, extensive interviews with participants in the PPP development effort, and review of the DLA Logistics System Modernization Program (LSMP) and CALS objectives indicate a number of actions that DLA can take to improve its productivity and responsiveness to the Services' provisioning needs.

- In the near-term, DLA needs to focus on implementing the automated capability shown in the PPP demonstration. It must integrate those actions with development and implementation of the Cataloging Tools On Line (CTOL) program. We address these actions in this chapter.
- Follow-on, longer term actions need to extend beyond preprovisioning to address the migration of DLA and the Services toward a digital, near-paperless provisioning environment. Longer term provisioning modernization is discussed in Chapter 5.

NEAR-TERM PREPROVISIONING SYSTEM DEVELOPMENT

The PPP demonstration provides a baseline system upon which functional and system design enhancements and extensions should be incorporated in the near-term. Those system design enhancements and extensions that we recommend be made as part of the near-term transition to an operational environment are described in Chapter 3 and summarized in Table 4-1.

Consistent with the Air Force's involvement in the PPP demonstration, we recommend near-term PPP development proceed with Air Force participation and later be expanded to include the other Services.

Near-Term System Development Plan

In this section, we address technical and organizational issues that require planning and coordination to ensure efficient PPP development and implementation.

Figure 4-1, a proposed PPP development plan, graphically displays the major actions and milestones that we recommend for the near-term to achieve a full production capability.

TABLE 4-1

PREPROVISIONING SYSTEM DEVELOPMENT REQUIREMENTS

Enhancements	Full-function extensions
Quick look-up capability with windows	Multiple center processing
PLICN assignment and access	Simultaneous processing of multiple contracts
Redefined manager functions	Tape loading procedures expansion
Redundant data storage elimination	Reports and management information expansion
Z-STEM communications software use	Database security enhancement
Screen layout modification	DLSC DIDS interface
Data transmission speed improvement	

We have categorized these actions and milestones into the phases system preparation, system development and testing, and system implementation. The following describes the three phases.

System Preparation

System preparation includes obtaining the following support:

- Near-term hardware and software support. Hardware and software support must be obtained to move the PPP demonstration off the DLA DAITC ELXSI 6400 computer and obtain sufficient workstations for full production capability. To continue ease of implementation, we recommend the following hardware and software for the host environment and DSCs:
  - Host environment.
    - Host computer with 500 megabytes (Mb) of mass storage (based on an average 10 Mb of data per contract and up to 50 contracts being processed simultaneously).
    - UNIX operating system.
    - UNIFY™ database management system.

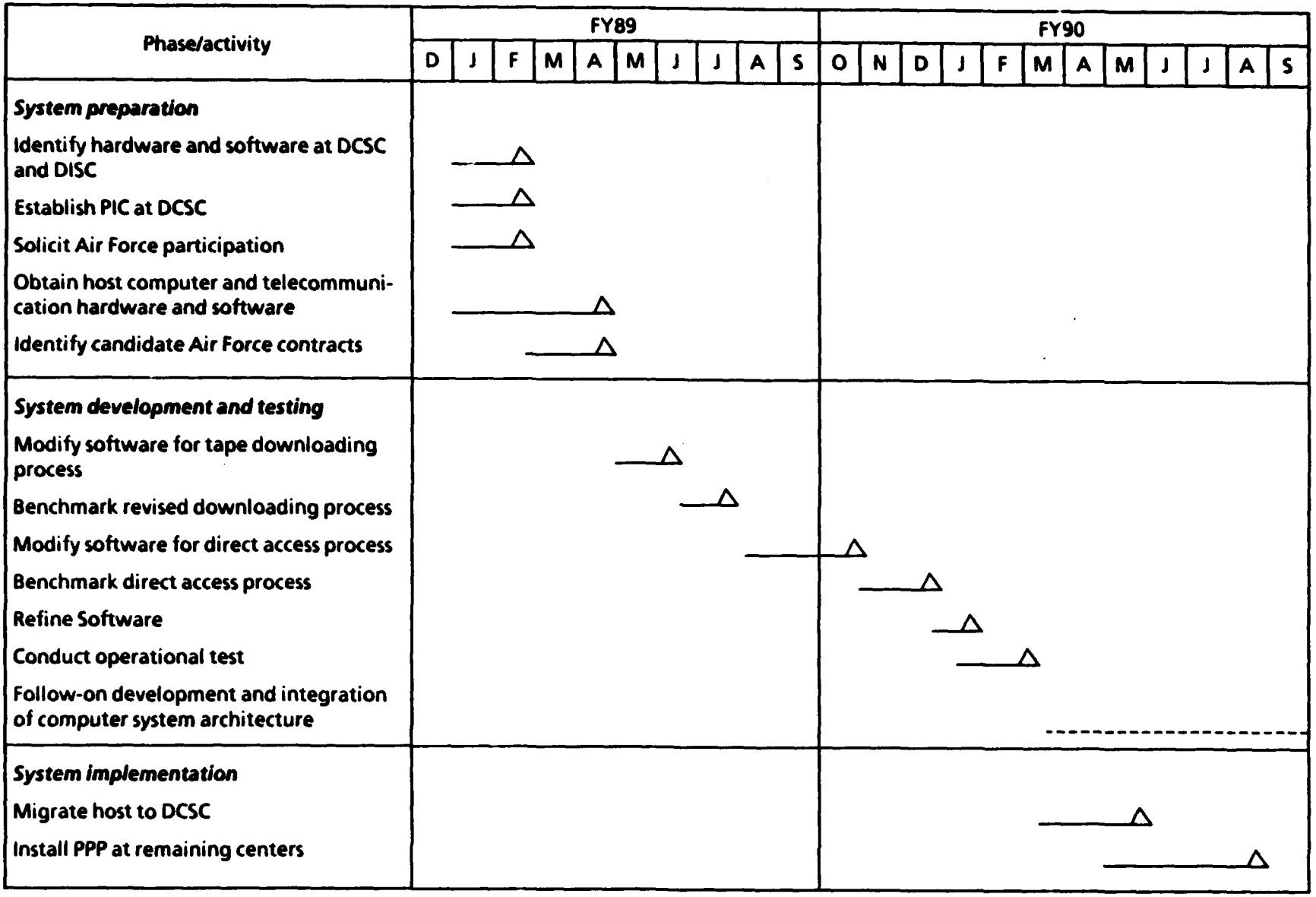


FIG. 4-1. PPP SYSTEM DEVELOPMENT PLAN

- ACCELL™ database application development software.
- ASCENT™ gateway software.
- 9600-baud telecommunications resources to support dedicated lines for four DLA hardware centers, each supporting four concurrent user sessions. One dedicated line will also be needed for system administration and development if these functions are performed by an activity remote from the host computer site.
- Structured Query Language (SQL) software to support user reports and statistics queries.
- Windowing software.

▸ DLA workstations [four at each DLA hardware center – DCSC, DISC, Defense General Supply Center (DGSC), and Defense Electronics Supply Center (DESC)] standard Z-248 configuration with the following features:

- Intel 80286 microprocessor.
- IBM PC/AT compatible Basic Input-Output System (BIOS).
- 640 kilobytes (kb) random access memory (RAM) – diskette controller and 5¼ inch kb diskette.
- Hard disk controller and 20 Mb drive.
- Monochrome graphics controller.
- Monochrome monitor with full 80×24 display.
- Parallel printer port and 80-column printer. Standard issue dot matrix will suffice.
- Keyboard.
- Support chips, bus connects, cabling, and all other pieces and parts required for a functioning system.
- MS-DOS, Version 3.21.
- Communications software with VT 220/300 emulation. Z-STEM is recommended.

- Military Service Support. DLA should seek continued Air Force cooperation. That support should build upon the cooperative efforts of the initial demonstration to further develop interfaces and refinements to PPP and the Air Force Logistics Command Mechanized Provisioning System. Additionally, this joint DLA/Air Force effort could be broadened to include

participation of other Services/agencies once PPP has matured. A Memorandum of Understanding (MOU) between the Air Force and DLA would be an appropriate vehicle for formalizing this joint effort. The MOU could be expanded to include other participants at a later date. (Including other participants subsequent to implementing the PPP will require only the program which extracts data from the Services' magnetic tape to be modified. No PPP functions or cataloger options will require modification.)

The MOU should establish the necessary framework for direct access to the Air Force's D220 Mechanized Provisioning System consistent with PPP upgrade efforts.

System Development and Testing

Approximately 1 year will be required to develop software for a full production capability. The software development will include the following activities:

- Validation of the basic PPP architecture.
- Preparation of a final PPP specification.
- Development and testing of hardware and software modifications and enhancements noted in Table 4-1.
- Follow-on Development and Integration of the Computer System Architecture. The prototype computer system architecture uses a central host computer with remote processing at "dumb" terminals. In the near-term, that configuration can be used. An alternative, a distributed processing environment, appears to be consistent with longer term goals associated with transition to a near paperless environment, particularly with regard to the use of graphics and expanding data transmission requirements. A distributed processing system would still employ a central host computer but would be capable of supporting a number of remote processing functions using "smart" terminals with both a text and graphics capability. In the near-term, DLA should examine alternative computer system architectures, including the feasibility of using the text-graphics workstations that will be available under the CTOL acquisition.

System Implementation

System implementation includes the following actions:

- Migrating the host computer environment to DCSC
- Installing the PPP at the remaining DLA centers (DISC, DGSC, and DESC).

Provisioning Integration Center

To facilitate the near-, mid-, and long-term development of the PPP, we recommend that DLA implement a PIC that would be the focal point for coordinating DLA preprovisioning efforts.

The first PPP implemented at a DLA center will constitute the baseline for subsequent sites and ultimate transfer of provisioning system technology and processes throughout the Defense establishment and industry. DCSC, the first PPP site, will serve as the primary DLA headquarters agent to coordinate both PPP operations and follow-on developmental and system enhancements. Additionally, DCSC has been the demonstration site for the CTOL workstation and other innovative technological initiatives. Thus, we recommend DCSC be designated as the PIC.

The technical objectives of the PIC are as follows:

- In the near-term PPP phases of system development and test
  - Validate preprovisioning system architecture and procedures
  - Provide an initial preprovisioning capability
- In the mid- and long-term, develop mechanisms for facilitating the upgrading of technology and procedures for existing provisioning methods and associated automated processes for transition to a digital environment.

The operational objective of the PIC is to centralize administrative control of the following tasks:

- Providing a single interface between the Services and the DSCs
- Receiving technical data from contractors and the Services and distributing those data to other DSCs as required
- Assigning FSCs to designated DSCs for each SSR received from a Service.

CHAPTER 5

PREPROVISIONING MODERNIZATION WITH EMERGING CALS ENVIRONMENT

GENERAL

The CALS initiative focuses on the application of current and emerging computer and telecommunications technology to significantly reduce the cost and improve the effectiveness of designing, producing, and supporting weapon systems and equipment. CALS-related demonstration efforts in DLA, the Services, and industry are expected to automate many traditional paper-based processes for handling data products such as engineering drawings, technical manuals, and logistic support analysis (LSA) reports. Contractor-delivered digital document image files and the conversion of stored documentation to digital form will provide a print or display-on-demand capability for most applications.

CALS TARGET CAPABILITIES FOR THE 1990s

Each of the Services and DLA has established a CALS program and plans to transition to a digital technical information environment. Target capabilities that have been identified generally include the following.

- Streamline and integrate selected weapon system design and logistic support functions, including the following:
  - The capability to integrate logistics technical information from a number of databases
  - The capability to integrate quantitative reliability and maintainability (R&M) requirements into design and design analysis processes.
- Minimize data redundancy and maximize data integrity, consistency, and traceability, including the following:
  - The capability to maintain weapon system configuration data on a near-real-time basis
  - The capability for automated updating of data based upon changes in weapon system design.

- Increase effectiveness and efficiency in the exchange of technical information including the following:
  - The capability to store, retrieve, distribute, and process technical information in paperless form
  - The capability to provide users with access to data from multiple sources.

TRANSITION TO A DIGITAL ENVIRONMENT

The transition from hard copy to digital media will require cooperation from industry, the Services, and DLA to use state-of-the-art digital hardware and software in performing three major functions:

- Automating and integrating the production of data (e.g., through CAD or automated authoring systems)
- Storing and retrieving data in digital form
- Distributing and using the data in digital form.

The media of paper, film, and digital will coexist during the transition to a near-paperless environment. In fact, some applications may rely on paper outputs indefinitely. Some small Defense contractors may be unable to make the transition to a wholly digital environment and will require drawings and data in paper or microform copy if they are to continue participating in the competitive bidding process. Alternatively, the possibility exists that contractors could be hired to provide these small Defense contractors with digital capabilities.

Reductions in the use of paper will be realized initially when repositories of existing technical information are converted to digital form and a print-on-demand capability is fully operational. Further reductions in paper will occur as contractor-generated data are processed, reviewed, and received by the Services in digital form and data products (i.e., engineering drawings and associated lists) are distributed in digital form. An accompanying evolution of digital data standards, such as the Product Data Exchange Specification (PDES), will provide the opportunity to move beyond the presentation of data in traditional products, such as standard reports, to an environment in which data can be displayed on demand to match the precise task being performed.

PROVISIONING MODERNIZATION

The evolving CALS environment establishes a framework for comprehensive modernization of the provisioning process. Five fundamental objectives for this effort are

- To reduce PALT support to the Services
- To shorten the provisioning research process by creating and assembling the right information
- To assist and simplify the provisioning decision-making process
- To decrease the amount of time and effort for provisioning source coding conferences or eliminate the conferences altogether
- To process Services SSRs electronically.

Achieving these objectives involves cooperative effort by the Services, DLA, and Defense contractors. Current progress in such areas as artificial intelligence, computer-aided engineering (CAE), CAD, computer-aided manufacturing (CAM), automated LSAR, advanced product data models, and data communications all affect the future direction of provisioning. The proposed PIC should be the focal point for streamlining and integrating the provisioning process. The PIC should ensure that the capabilities implemented by DLA meet customer requirements and are compatible with the technologies adopted by both industry and the Services. Establishing the PIC would put DLA at the forefront of the provisioning modernization process. Such a role is not intended to (nor will it) alter Service responsibilities for equipping and supplying their forces. It does, however, recognize that DLA is the major supplier within DoD. Approximately 58 percent of common piece parts used by the Services are cataloged and managed by DLA.

The PIC could also serve as part of the CALS Testbed Network for developing and validating proposed provisioning enhancements accruing from CALS and other logistics modernization efforts. Some of the more significant areas for which the PIC could provide development and validation assistance are shown in Table 5-1.

TABLE 5-1

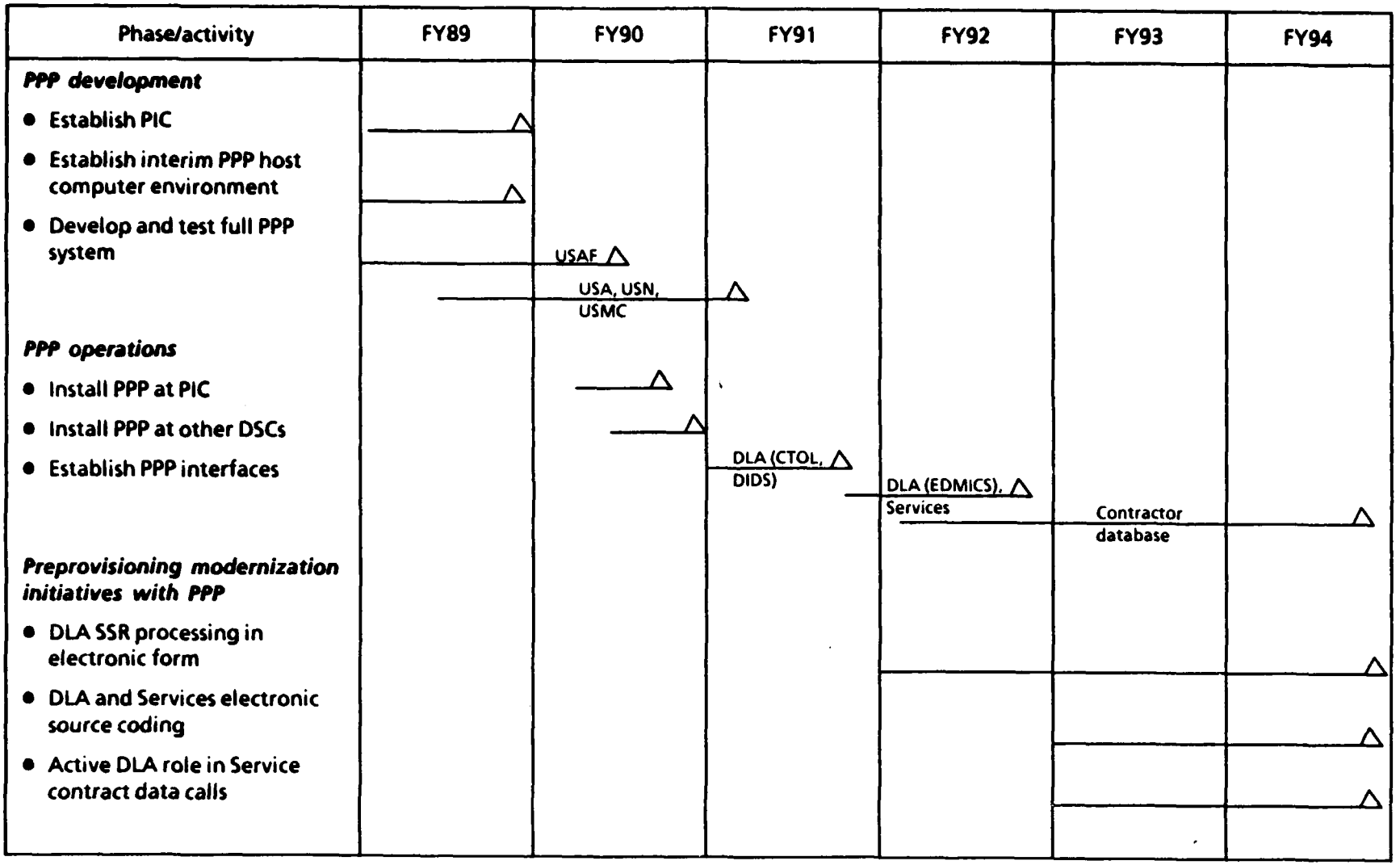
PROVISIONING MODERNIZATION 1991 – 2001

Primary thrust	Activity	Impact
Implementation		
• Increased use of CAE/CAD	Industry	• More accurate parts representation • Greater use of standardized parts • Drawing adequacy review reduced or eliminated
• Automate technical data repositories	DLA, Services	• More accessible data • Hard copy data exchange
• Integrated weapon system data management	Services	• More accurate requirements forecasts
Development		
• Enhanced automated LSAR	Industry, Services, DLA	• Redundancy of support data reduced or eliminated
• Expanded data communications	DCA, Services, DLA	• Data reviewed and approved on-line
• Provisioning knowledge engineering systems	Industry, Services, DLA	• Collective provisioner/cataloger skills and experience facilitate decisionmaking

Note: DCA = Defense Communications Agency.

Major near-, mid-, and long-term milestones for fully integrating the PPP are shown in Figure 5-1. The PPP development plan and operations are discussed in Chapter 4 of this report. It focuses on achieving an initial production capability. In the mid- to long-term, PPP interfaces should be established with CTOL, DIDS, Engineering Data Management Information and Control System (EDMICS), other Services and contractor databases. Additionally, PPP modernization initiatives will permit DLA to

- Process SSRs in electronic form
- Perform electronic source coding with Services
- Play an active role in Service contract data calls.



Note: USAF = United States Air Force; USA = United States Army; USN = United States Navy; USMC = United States Marine Corps.

FIG. 5-1. PREPROVISIONING MILESTONES

DLA Role in Initial Provisioning Process

The merits of DLA participating in the provisioning process prior to the traditional provisioning conference are discussed in Chapter 3. However, in a paper-based process, the provisioning conference is necessary, and it occurs well into the weapon system development process.

We believe active DLA participation in the initial phases of a weapon system acquisition should occur well before the provisioning conference, particularly when data exchanges are expedited between the Services and contractors, either through digital media or direct on-line access. In the following two specific areas, existing procedures must be significantly adjusted in an anticipatory (proactive) DLA provisioning management role:

- *Contract development.* Ideally, DLA would participate with the Services to ensure that contract language for development, procurement, and access to technical and other data used in provisioning meets both Service and DLA requirements as it is generated (no Service repackaging would be required for DLA use). DLA would participate in the Services' contract data calls and would have the authority to interact directly with the contractor. Direct DLA-contractor interaction would focus on identifying in the contract the full range of engineering drawings and associated technical data required to support provisioning/cataloging.
- *Provisioning planning and guidance conferences.* DLA participation in initial Service provisioning planning and guidance conferences should be initiated to provide the opportunity for continued cooperative effort and awareness by DLA and the Service regarding the following typical issues:
  - Task and funding milestones
  - Commitments for optional requirements
  - Contractual provisioning requirements
  - Operational and maintenance concepts
  - Provisioning techniques to be used
  - Provisioning screening requirements
  - Item identification and data preparation
  - Design change notices

- Delivery schedules
- Interim support requirements.

Note: We recognize that DLA may find it impractical to provide equal coverage to all acquisition contracts and all provisioning planning and guidance conferences. Mutually agreeable attendance criteria should be the subject of joint DLA/Military Services arrangement. The key issue is that failure to consider an early, active DLA role ignores the fundamental joint (Services and DLA) nature of the provisioning process.

DLA Access to Provisioning Data

Services with on-line access to contractor databases are already experiencing rapid turnaround for design changes and approvals. Since DLA does not now have visibility into this process, its required item identification, item entry control, and item management actions must await sequential processing and generation of an SSR by the Services.

DLA could have on-line access to the initial provisioning process early on through

- DoD automated provisioning systems and provisioning-related databases
- Contractor automated provisioning and LSAR databases.

Examples of DoD automated provisioning systems and provisioning-related databases available to DLA are

- *Service provisioning data system.* A near-term provisioning enhancement could be realized by DLA accessing the Air Force D220 automated provisioning system. On-line access accompanied by bulk data downloading to the DLA PPP would provide necessary data to DLA. A similar process could be initiated between the DLA CTOL system and the Services automated data repository systems to obtain SPTD (i.e., engineering drawings, sketches, and schematics). On-line access to both initial provisioning and SPTD would enable DLA to rapidly identify items and perform initial screening tasks directly with the Services' provisioning databases. Following DLA item identification and initial screening, the Service would review and approve DLA inputs, using the database rather than a listing or report derived from the database. That procedure can accelerate the provisioning coding process to a degree that will significantly

reduce or possibly eliminate the requirement for traditional source coding conferences.

- *DIDS TIR access.* The DIDS contains fully descriptive technical information on stocklisted items in its TIR file. On-line access to these data by industry, the Services, and DLA activities will facilitate accurate first-time item identification, screening, and I&S evaluation.

Examples of contractor automated databases from which DLA could benefit through on-line access are

- *Logistics and procurement data access.* Early expansion of on-line access capabilities to the provisioning process could be realized as an outgrowth of current Service efforts such as that at the Navy's Aviation Supply Office (ASO). Currently, ASO has on-line access to the logistics and procurement files of seven major Defense contractors for the following types of data:
  - Manufacturing sources
  - Material sources
  - Bill of material for TDBD
  - Make-or-buy data
  - Functional test requirements
  - Technical data revision status.

  The following potential benefits accrue from making the types of source data included in this application available to end users:
  - Access to the most current data is ensured because data ownership and configuration control are maintained by the contractor.
  - Redundant data processing and handling can be minimized because source data rather than regenerated data are used.
- *LSAR data.* By the mid-1990s, most major contractors will have developed or purchased enhanced LSAR data-processing systems. Accompanying technology upgrades are expected to include on-line interface with other corporate data files of significant design and support data. The result will be an integrated, on-line database and necessary software that could serve both Military Service and DLA needs in initial outfitting and provisioning.

DLA Role Subsequent to Initial Provisioning

In addition to the benefits available to DLA through on-line access to DoD and contractor databases in the provisioning process, DLA should also have on-line access to the following types of data:

- *Parts usage data.* Data aggregated in Service materiel forecasting and inventory management systems are utilized internally within the Services to determine changes in supply support requirements. The Services' subsequent submittal of SSRs currently notifies DLA of their support requirements. Early DLA visibility to the Services' parts usage data would permit more-timely assessment of current inventory levels and anticipated demands.

- *Configuration status accounting and design change data.* Currently, the process of weapon system design change and system retrofit takes place exclusively within the design and engineering activities of the Services. Design changes and system retrofitting only become visible to cognizant Service supply activities when the design and engineering activities submit applicable Design Change Notices (DCNs). DLA obtains visibility of a given design change only after the Service supply activity submits an SSR.

Even though efforts within the Services to link design change and support processes more closely should reduce time lags for generating SSRs, DLA should have access to DCNs. Timely DLA visibility to DCNs (preferably when released to the Service supply organization) would give DLA the opportunity to evaluate the inventory status and project aggregate demand changes early in the provisioning process and would result in maximized DLA supply support to Service requirements. That timely visibility is especially important when we consider that significant requirements for additional DLA supply support will occur as modifications and upgrades are made to the 70–80 percent of current weapon systems expected to still be deployed in the post-2000 timeframe.

PROVISIONING TRANSITION TO A DIGITAL ENVIRONMENT

The CALS initiative provides the umbrella under which cataloging and provisioning can be streamlined to reduce the Services' requirement to participate in the cataloging process and ultimately to eliminate that requirement entirely. DLA and the contractor rather than the Services would perform the cataloging functions. Early visibility of each Service and DLA to each other's databases for design,

support, and maintenance feedback would hasten the process. Continuous updating of Service databases will permit suppliers to approve and use the data.

With data accessibility and advanced inventory modeling techniques, DLA can streamline and improve item management in a similar fashion. Visibility to changes in program status, usage rates, configuration status, and other relevant data will enable the Services and DLA to perform supply and resupply operations simultaneously rather than sequentially. That is, inventory management and requirements forecasting will evolve into a coordinated Service/DLA process that can respond proactively to the needs of the operating forces.

SUMMARY

General

The PPP system demonstration has verified that the application of computer technology to the provisioning process affords a significant opportunity to improve productivity and increase the effectiveness of DLA operations in support of the Services and other Defense agencies. It also showed significant opportunities for capitalizing on emerging CALS data exchange standards and other ongoing CALS initiatives to streamline provisioning and cataloging processes.

Cataloging and Provisioning Modernization

We recommend that DLA develop the PPP to a full production system; the major initiatives needed to do so are shown in Table 5-2. Implementation of our recommendation means establishing a fully operational PPP capability at the four DSCs during FY90.

The first PPP site at DCSC is proposed as a PIC, a focal point for coordinating follow-on modernization efforts among DLA, the Services, and Defense contractors. The PIC puts DLA in a leading role to influence modernization of cataloging and provisioning processes.

TABLE 5-2

PPP MODERNIZATION INITIATIVES 1990 – 2001

Action	Purpose
Implementation	
Establish PIC	Test and validate functional and technical interfaces
Integrate preprovisioning with CTOL and DIDS	Shorten research process
Establish logistics data gateway environment	Access to Service and contractor databases (*provisioning*, LSAR, and configuration status)
Development	
Develop knowledge-based systems	Expedite item management decisions
Develop CAE/CAD-based tools	Assist in I&S evaluation

GLOSSARY

ALC	=	Air Logistics Center
ASO	=	Aviation Supply Office
bps	=	bits per second
CAD	=	computer-aided design
CAE	=	computer-aided engineering
CAGE	=	contractor and Government entity
CALS	=	Computer-aided Acquisition and Logistic Support
CAM	=	computer-aided manufacturing
CNID	=	contract number identification code
CTC	=	cataloger technician code
CTOL	=	Cataloging Tools On Line
DAC	=	document availability code
DAITC	=	Defense Applied Information Technology Center
DCA	=	Defense Communications Agency
DCN	=	Design Change Notice
DCSC	=	Defense Construction Supply Center
DESC	=	Defense Electronics Supply Center
DGSC	=	Defense General Supply Center
DIDS	=	Defense Integrated Data System
DISC	=	Defense Industrial Supply Center
DLA	=	Defense Logistics Agency
DLSC	=	Defense Logistics Services Center
DoD	=	Department of Defense

DSC	=	Defense Supply Center
EDMICS	=	Engineering Data Management Information and Control System
FSC	=	Federal Supply Class
I&S	=	interchangeability and substitutability
ICP	=	inventory control point
kb	=	kilobyte
LSA	=	logistic support analysis
LSAR	=	Logistic Support Analysis Record
LSMP	=	Logistics System Modernization Program
Mb	=	megabyte
MCM	=	Master Contract Matrix
MIL-STD	=	Military Standard
MOU	=	Memorandum of Understanding
NIIN	=	National Item Identification Number
NSN	=	National Stock Number
P/N	=	part number
PALT	=	procurement administrative leadtime
PC	=	personal computer
PCB	=	Provisioning Control Branch
PCCN	=	Provisioning Contract Control Number
PDES	=	Product Data Exchange Specification
PIC	=	Provisioning Integration Center
PIIN	=	Procurement Instrument Identification Number
PLICN	=	PLISN/PCCN/SCC
PLISN	=	Provisioning List Item Sequence Number
PPL	=	Provisioning Parts List
PPP	=	Preprovisioning Prototype

PPR	=	Provisioning Parts Record
PSR	=	provisioning screening results
PTD	=	provisioning technical documentation
QUP	=	quantity unit pack
R&M	=	reliability and maintainability
RAM	=	random access memory
RDT&E	=	research, development, test, and evaluation
RNCC	=	reference number category code
SCC	=	Submission Control Code
SPTD	=	supplementary provisioning technical documentation
SQL	=	Structured Query Language
SSR	=	supply support request
TDBD	=	Top Down Breakdown
TIR	=	Total Item Record
U/I	=	unit of issue

APPENDIX

MASTER CONTRACT MATRIX ESTABLISHMENT

INTRODUCTION

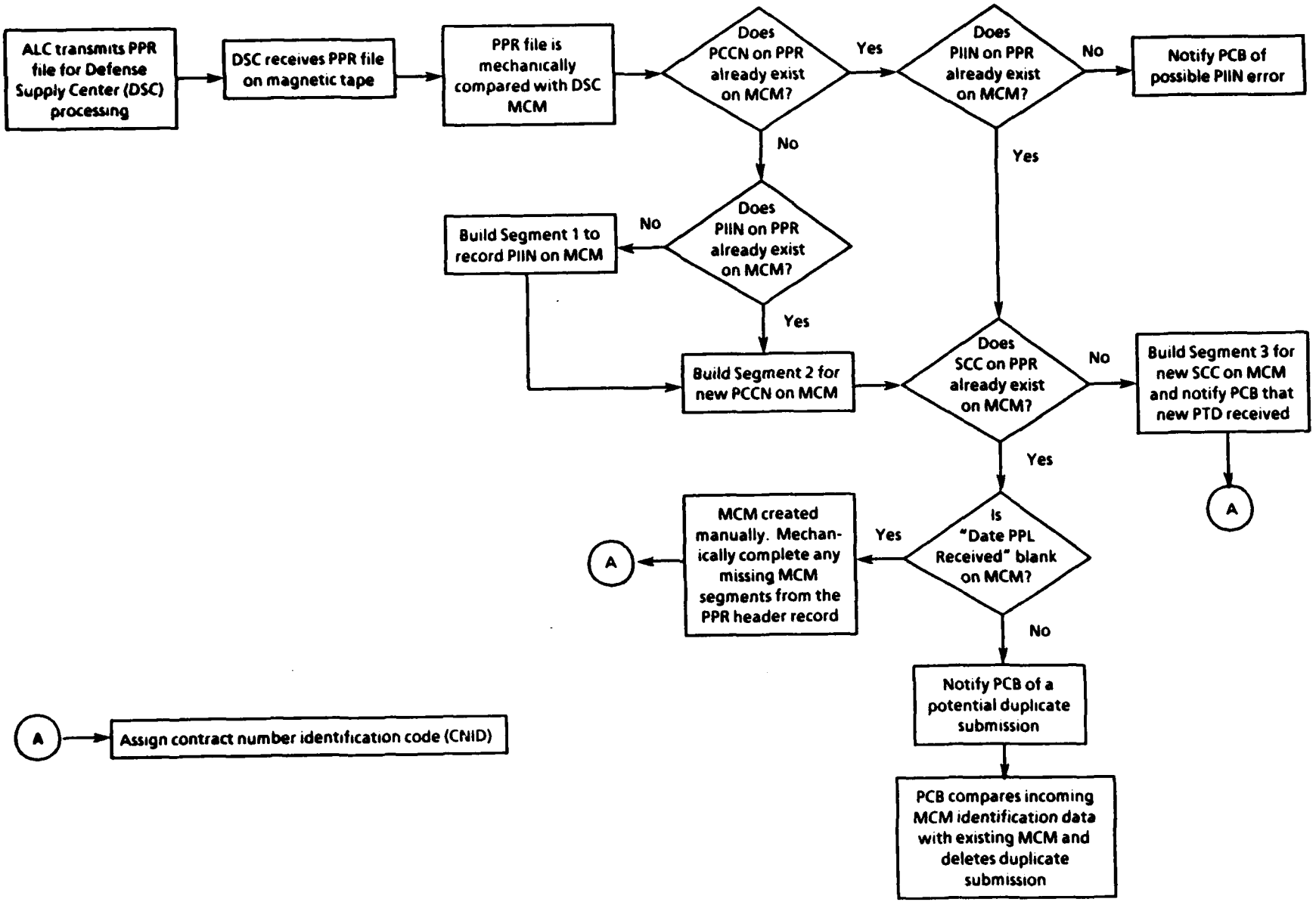
The Master Contract Matrix (MCM) function establishes the submission identification data file. Each record in the MCM is established by either the cataloger or the Preprovisioning Prototype (PPP) during the validation step of the data submitted to the Defense Construction Supply Center. The cataloger can establish this record. The system either completes the record established by the cataloger or builds the entire data record from information recorded in the header information of the Air Logistics Center (ALC)-submitted data. The cataloger can view, query, and update this file through an on-line, menu-driven capability. Interactive and off-line updates are also made to this file as a result of interactive and off-line processing of the PLICN [Provisioning List Item Sequence Number (PLISN)/Provisioning Contract Control Number (PCCN)/Submission Control Code (SCC)] file.

Process Supporting the Master Contract Matrix Establishment

Figures A-1 and A-2 depict the processes that support establishing the MCM.

The MCM comprises the following three segments:

- Segment 1
  - Procurement Instrument Identification Number (PIIN)
  - Prime contractor identification data
- Segment 2
  - PCCN
  - Provisioning Parts List (PPL) due date
  - Nomenclature type



Note: PCB = Provisioning Control Branch; PPR = Provisioning Parts Record; PTD = provisioning technical documentation.

FIG. A-1. ESTABLISHMENT OF MASTER CONTRACT MATRIX FILE

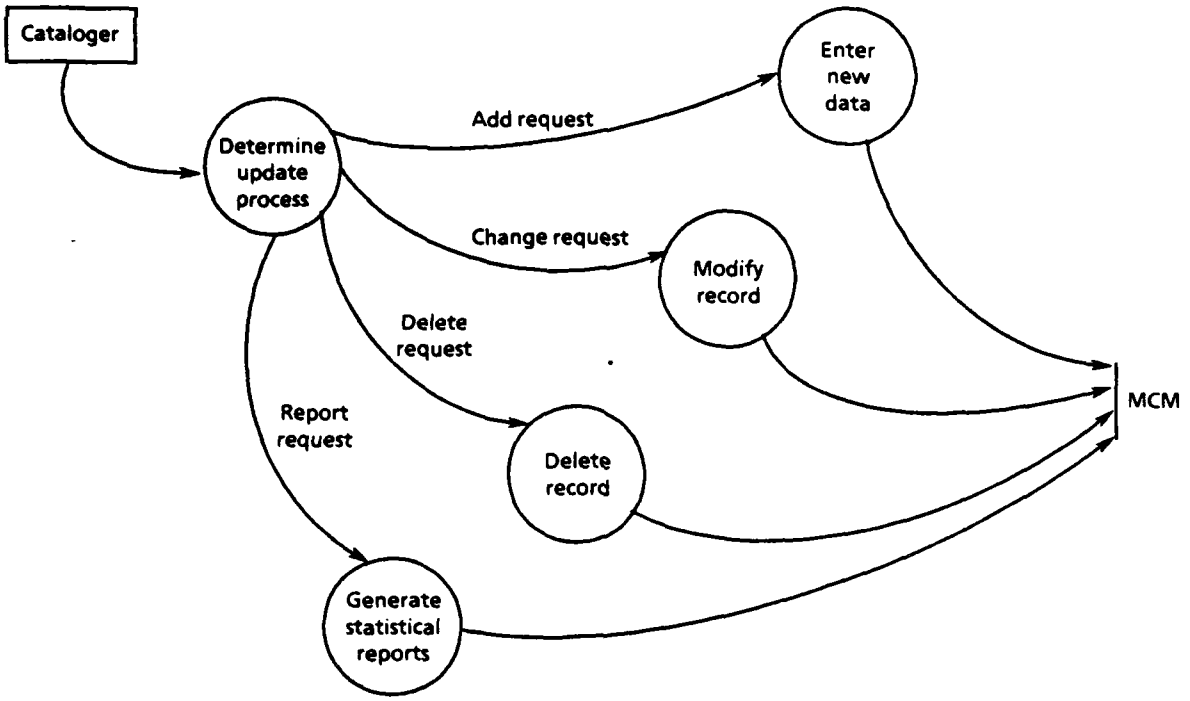


FIG. A-2. MAINTAIN MASTER CONTRACT MATRIX FILE

- Segment 3
  - SCC
  - Management data.

One or more Segments 2 can be associated with each Segment 1, and one or more Segments 3 can be associated with each Segment 2.

Upon receipt of PPL data [Provisioning Parts Record (PPR) file] from the ALC, the PPP performs the following actions:

- Searches Segment 2 by PCCN (from PPR file).
  - If the PCCN is not found in the MCM, the PPP searches the Segment 1 data file for a matching PIIN.
    - If the PIIN is already recorded, it builds Segment 2 for a new PCCN (using the PCCN from the PPR file).
    - If the PIIN is not recorded, it builds a Segment 1 from information provided on the PPR file and builds Segment 2 for the new PCCN.

- If the PCCN is found in the MCM, the PPP searches Segment 1 for the PIIN.
- If the PIIN is not detected in the MCM, the PPP notifies the cataloger of a possible PIIN error.

- Searches Segment 3 data file by SCC.
  - If the SCC is not recorded, the PPP builds the Segment 3 data set and assigns it to a cataloger.
  - If the SCC is recorded, the PPP checks the Date PPL Received field in the MCM.
    - If the field is blank, the PPP adds data elements to the MCM record. A blank Date PPL Received field indicates that the file was created manually. The cataloger may not have had all the information required for Segments 1, 2, or 3. The system now fills in the missing data in the MCM from the PPR header record.
    - If the field is not blank, the PPP notifies the cataloger of a potential duplicate submission. The cataloger has the capability to compare the incoming MCM identification data with the existing MCM file and to delete a duplicate submission.

- Assigns a contract number identification code (CNID). When the SCC is recorded in the MCM, the PPP assigns a three-position CNID to the MCM record. That code is used to identify the PIIN, PCCN, and SCC for each PLICN record in the history file. It reduces the size of identification data for individual PLICN history records. (Since the SCC must be automatically entered upon receipt of provisioning technical documentation from the ALC, the CNID should also be assigned at that time.)